Science & Technology

ALEXANDER GRAHAM BELL:
The Life and Times of the Man Who Invented the Telephone.
By Edwin S. Grosvenor and Morgan Wesson. Harry N. Abrams. 304 pp. $45

This dramatically laid-out volume opens with a full-page blowup of a Victorian photograph. Fourteen-year-old Aleck Bell, book in hand, leans pensively against a garden urn. The volume closes with a small head shot: Bell 65 years later, an old lion with fierce eyebrows and snow-white beard. This slightly blurred final image packs a surprise. It is not a photo but an early electronic facsimile, wired to New York from Cleveland over an experimental line in 1924.

The bracketing makes a biographical point, for Bell's career epitomizes the mentality that produced the technological leap. Thinking the unthought-of round the clock, he invented not only his world-transforming telephone but a metal detector, an early version of the iron lung, and a "photophone" that sent sound by light waves, preceding Marconi's wireless by 18 years. He built a hydrofoil driven by two 350-horsepower engines that zoomed to a world-record 70 miles per hour. Neck and neck with the Wright brothers, he and some partners constructed a powered air-

craft that flew 150 times without crashing. He conceived the idea of implanting radium in tumors to shrink them, founded the journal *Science*, experimentally bred ewes with extra nipples so they could suckle more offspring, and pondered global warming, which he named the "greenhouse effect." The list goes on—not to mention that, as the son of one deaf woman and the husband of another, he considered his true life's work to be the education of the deaf.

So innovating a life deserves a first-rate biography, and it has one: Robert V. Bruce's *Bell: Alexander Graham Bell and the Conquest of Solitude* (1973). Although Grosvenor and Wesson do not change the contours of Bell's career as Bruce mapped them, their text and captions provide a well-told, brief life of the inventor. They draw fresh material, too, from Bell's huge correspondence, and they expand matters that Bruce treated in passing, especially the social effects of the telephone. But what sets apart their artbook-like volume are its 400 illustrations. More than half of them published here for the first time, they make an eye-popping pictorial commentary on Bell's life and times. Many come from the thousand family photographs tucked in nooks and crannies of the Bell family home in Nova Scotia (Grosvenor is a great-grandson of Bell) or from 3,000 unpublished images of the phone industry in the early 20th century taken by the photographer Morris Rosenfeld.

Whether intimate or public, these unfamiliar illustrations have the spellbinding interest of the just-unearthed past. Here is the cabalistic-looking glove Bell used to teach a deaf boy, imprinted at fingertip, thumb, and palm with letters that could be touched to spell words. Through the window of a diving helmet we see the face of Bell's adventurous wife, Mabel, as she prepared to descend underwater off Nassau. And, of course, everywhere the telephone. Early prototypes, some in glowing color plates: Bell's "multiple harmonic telegraph," his "liquid variable-resistance transmitter." The succession of wrinkles and improvements: the first dial telephones, first nickel-in-slot pay phones. The transforming presence of the telephone on the American scene: a male operator seated at the San Francisco Chinatown switchboard, earphones braced over his long pigtail; a hole-digging crew on the transcontinental line, working across the Nevada desert—in a covered wagon. And pervading all, the embryonic present. An early ad for the Bell system shows a long row of houses with open doors, and proclaims how, in connecting them, the telephone "provides a highway of universal communication."

—*Kenneth Silverman*